Amendments To The Claims

1. (Currently Amended) A method of forming a photonic crystal ~~material~~, said method comprising exposing a film of a photosensitive ~~material~~ composition to ~~an~~ a three-dimensional interference pattern of electromagnetic radiation of a predetermined wavelength whereby the exposure through the ~~material~~ photosensitive film varies in accordance with the ~~spatially~~ three dimensionally varying intensity created by the interference to produce a three dimensional periodic variation in the refractive index of the ~~photosensitive material~~ film based on the exposure, wherein the photosensitive ~~material~~ film comprises a first component which is a polymerisable material possessing an average number of crosslinkable groups per molecule of at least 3 with an equivalent weight per crosslinkable group of at most 1000, and a second component which is a photoacid generator; the photosensitive film has a thickness of 10 to 100 micrometers, and wherein the first component of the photosensitive composition is selected so as to have a low degree of optical absorption at said predetermined irradiating wavelength and for said thickness range of said photosensitive film, and the photoacid generator is selected such that not more than 5% of the radiation of said predetermined wavelength incident upon the photosensitive film of said thickness range is absorbed therein.

2. (Currently Amended) A method according to claim 1, wherein the irradiated ~~sample~~ film of said photosensitive ~~material~~ composition is developed to remove less irradiated regions of the ~~sample~~ film.

3. (Currently Amended) A method according to claim 1 wherein the first component of the photosensitive ~~material~~ composition is an epoxy resin.

4. (Previously Presented) A method according to claim 1 wherein the number of crosslinkable groups per molecule is at least 6.

5. (Original) A method according to claim 4 wherein the number of crosslinkable groups per molecule is about 8.

6. (Previously Presented) A method according to claim 1 wherein the equivalent weight per crosslinkable group is at most 300.

7. (Original) A method according to claim 6 wherein the equivalent weight per crosslinkable group is at most 230.

8. (Currently Amended) A method according to claim 1 wherein the first component of the photosensitive ~~material~~ composition is a glycidyl ether of bisphenol A novolac resin.

9. (Original) A method according to claim 8 wherein the resin is one where the number of epoxy groups per molecule is about 8 and the resin is co-polymerised with a less crosslinkable plasticising epoxy monomer.

10. (Cancelled)

11. (Currently Amended) A method according to claim ~~10~~ 1 wherein the photoacid generator possesses a molar extinction coefficient of 50 to 2000 mol^{-1} dm^3 cm^{-1} at the irradiating wavelength ~~of radiation being used,~~ and is used at a concentration at which it does not absorb more than 5% of the radiation which is incident upon it while having a quantum efficiency which is sufficient for the exposure to cause insolubilisation of the photosensitive material.

12. (Original) A method according to claim 11 wherein the molar extinction coefficient is 100 to 500 mol^{-1} dm^3 cm^{-1}.

13. (Previously Presented) A method according to claim 11 wherein the photoacid generator is a triaryl sulphonium salt.

14. (Currently Amended) A method according to claim 1 wherein the photosensitive ~~material~~ film is cured by subsequent heating to cause acid catalysed polymerisation.

15. (Currently Amended) A method according to claim 14 wherein the photosensitive ~~material~~ film is cured by heating at 40°C to 120°C for 1 to 20 minutes.

16. (Currently Amended) A method according to claim 14 wherein the heating is carried out at a temperature below the melting point of the photosensitive ~~material~~ composition.

17. (Currently Amended) A method according to claim 2 wherein material is introduced into the voids produced by development of the irradiated photosensitive ~~material~~ film.

18. (Currently Amended) A method according to claim 17 wherein the optical properties of the irradiated ~~sample~~ film are adjusted by the introduction of a material having a predetermined refractive index that is different from that of the irradiated photosensitive ~~material~~ composition.

19. (Currently Amended) A method according to claim 17 wherein the irradiated ~~sample~~ film is used as a template for the production of other composite materials having periodic variations in refractive index.

20. (Currently Amended) A method according to claim 1, wherein the photosensitive ~~material~~ film is subjected to multiple exposures, each exposure producing respective interference patterns.

21. (Currently Amended) A method according to claim 1, wherein the three dimensional pattern is formed by directing electromagnetic radiation from at least

four beams at the photosensitive ~~material~~ film so as to intersect and interfere within it.

22. (Previously Cancelled)

23. (Previously Cancelled)